# THE PENNY MAGAZINE

OF THE

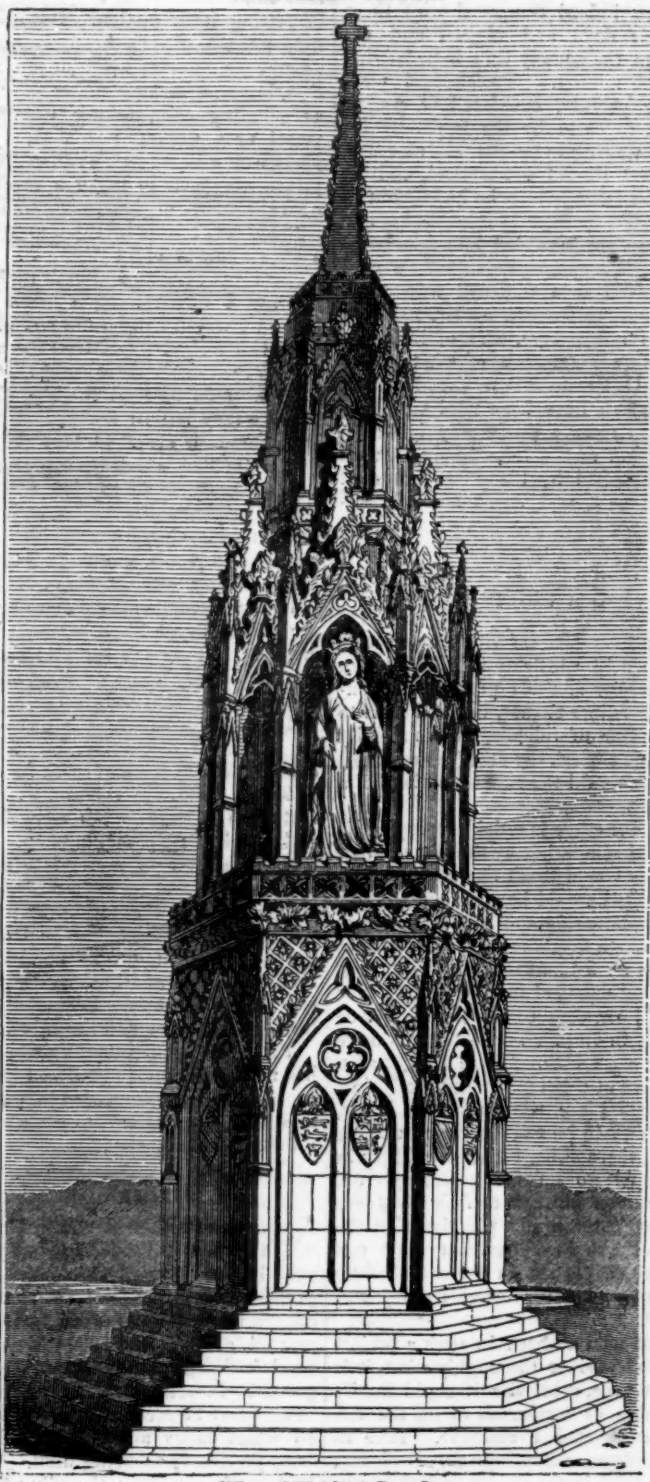
**Society for the Diffusion of Useful Knowledge.**

113.] PUBLISHED EVERY SATURDAY. [JANUARY 4, 1834.


## WALTHAM CROSS.

WALTHAM Cross was built within the last ten years of the thirteenth century, when the pointed style of architecture was undergoing a change, or passing from the first to the second period. It is one of about fifteen which were erected by Edward I., in memory of his affectionate and devoted wife Eleanor of Castile, in the places where her corpse was rested for the night, in the long and melancholy journey which he himself made with it from Herdeley in Nottinghamshire, not far from which place she died, to Westminster Abbey, where it was buried in the chapel of King Edward the Confessor. They were long known as Queen Eleanor's crosses, and although all but three of them have perished, tradition still marks the sites of most of the number. Charing-Cross derives its name from the last of the series, and the other two still existing, besides Waltham, are at Northampton and Geddington.

This one of the series of beautiful memorials of conjugal love, and perhaps the most beautiful of them all, had fallen so much into decay as to become an almost shapeless mass of stone. A few years more would have left nothing of Waltham Cross remaining but the name. Fortunately the attention of the neighbouring gentry, and of others who take an interest in such subjects, was called to this while it was yet time to save something of its pristine form and matter, and while it still afforded indications upon which much that was deficient might be restored. A meeting was consequently held, at which Colonel Moody of the Royal Engineers presided; resolutions were entered into to raise money by subscription for the purpose of restoring or repairing the monument, and a subscription was immediately commenced by those who were present. The designing and direction of the work were intrusted to Mr. W. B. Clarke, assisted by a committee of the subscribers. The restoration is, upon the whole, satisfactory.



[View of Waltham Cross.]

The subscription which has been entered into for the purpose of repairing this interesting monument is very creditable to those who have set it on foot. It is pleasant to find a spirit of attachment to our old historical memorials springing up on every side. The last generation, and those who went before them, were too much in the habit of destroying the relics of their forefathers,—at any rate, of leaving time to work their destruction. We have learnt that the ancient monuments of a nation are amongst its best possessions.

Mr. Clarke has favoured us with a drawing of the annexed wood-cut, which exhibits the Cross as restored.

## PERPETUAL MOTION.

*(From a Correspondent.)*

AN able writer in the 'Penny Magazine' has clearly shown the futility of seeking to *square the circle*, a pursuit in which, he says, persons are still engaged. How many may waste their time on such an object I have no means of knowing;—not any considerable number, I should think, as nobody can expect any profit to arise even from success. At all events, such enthusiasts must be few indeed compared with those who are spending their days and nights, and exhausting their means, in the equally vain hope of discovering the perpetual motion. Professional men, employed in preparing patents, could tell of project after project submitted to them by the impatient inventor who is afraid of waiting to perfect his machine, lest his invaluable secret should get abroad, and he should be deprived of the riches which he has all but in his grasp.

Two classes of persons are inveigled into this hopeless quest: the first is the projector,—generally a man who can handle tools, and who is gifted with some small power of invention,—a faculty, as Mr. Babbage justly observes, by no means rare, and of little use unless coupled with some knowledge of what others have done before him. Of the inventions already made, —of the experiments which have been tried and have failed,—our projector is usually profoundly ignorant. What are called the laws of mechanics, namely, general truths which were established by the observations of scientific men in times past, and which are now admitted by all who take the trouble to investigate them, he has either never heard of or chooses to set at nought without inquiry. The other class is that which finds capital. The projector, having perhaps exhausted his own funds, takes his scheme to some person who has a little money to spare, and dazzles him with the prospects of sudden and splendid wealth: little by little he is drawn into expenses which neither of them perhaps had anticipated. Failure after failure ensues, but still all is to be right at last. The fear of ridicule,—the necessity for retrieving, the one his capital, the other his credit,—these motives carry them on till the ruin of both puts a termination to their folly.

Unhappily, however, the stage is quickly occupied by other adventurers, profiting nothing by the fate of their precursors; and yet one would think that a very slight consideration of the subject would be sufficient to show the absurdity of the undertaking. What is the object aimed at? Is it to make a machine which, being once set in motion, shall go on without stopping until it is worn out? Every person engaged in the pursuit of the perpetual motion would perhaps accept this as a true statement of the object in view. Yet nothing is more easy than to make such a machine. There are from ten to twenty of them at work at this moment on the Rhine, opposite Mayence. These are water-mills in boats, which are moored in a certain part of the river; and, as the Rhine is never dry, these mills, which are simple in their construction, would go on for years,—go on, indeed, until they were worn out. But if this instance were mentioned, the projector would perceive that the statement of his object was imperfect. It must run thus:—a machine which, being set in motion, shall go on till worn out without any power being employed to keep it in motion.

Probably few persons who embark in such a project sit down beforehand to consider thoroughly what it is they are about to undertake, otherwise it could hardly require much knowledge of mechanics to see the impossibility of constructing such a machine. Take as many shafts, wheels, pulleys, and springs as you please: if you throw them in a heap in the corner of your room, you do not expect them to move; it is only when put together that the wildest enthusiast expects them to be endowed with the power of self-movement; nor then unless the machine is set going. I never heard of a projector who expected his engine to set off the moment the last nail was driven, or instantly on the last stroke of the file. And why not? A machine that would continue to go of itself would begin of itself. No machine can be made which has not some friction, which, however slight, would in a short time exhaust any power that could have been employed merely for the purpose of setting it in motion. But a machine, to be of any use, must not only keep moving itself, but *furnish power;* or, in other words, it must not only keep in motion, but it must have power to expend in some labour, as grinding corn, rolling metals, urging forward a vessel or a carriage; so that, by an arrangement of parts which of themselves have no moving power, the projector expects to make a machine, self-moving, and with the power of performing some useful task!

"Father, I have invented a perpetual motion!" said a little fellow of eight years old. "It is thus: I would make a great wheel, and fix it up like a water-wheel; at the top I would hang a great weight, and at the bottom I would hang a number of little weights; then the great weight would turn the wheel half round and sink to the bottom, because it is so heavy, and when the little weights reached the top, they would sink down because they are so many, and thus the wheel would turn round for ever." The child's fallacy is a type of all the blunders which are made on this subject. Follow a projector in his description, and if it be not perfectly unintelligible, which it often is, it always proves that he expects to find certain of his movements alternately strong and weak, not according to the laws of nature, but according to the wants of his mechanism.

If man could produce a machine which would generate the power by which it is worked, he would become a creator. All he has hitherto done,—all, I may safely predict, he ever will do,—is to mould existing power so as to make it perform his bidding. He can make the waterfall in the brook spin his cotton, or print his book by means of machinery, but a mill to pump water enough to keep itself at work he cannot make. Absurd as it may seem, the experiment has been tried; but, in truth, no scheme is too absurd for adoption by the seekers after perpetual motion. A machine, then, is a mere conductor of power into a useful channel. The wind grinds the corn,—the sails, the shafts, and the stones are only the means by which the power of the wind can be turned to that particular purpose; so it is the heat thrown out by the burning coal which performs all the multifarious operations of the steam-engine, the machinery being only the connecting links between the cause and the effect.

Perhaps these remarks may induce any projector who has not yet begun, to pause on his enterprise; and may cause those who are about to advance their capital in such vain speculations, to examine the probabilities of a return for their outlay.

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## BREAD IN THE EAST.

A PERSON accustomed to the lengthened processes by which food is prepared in Europe, is considerably surprised when brought to observe the rapidity of similar preparations in the East. A sheep is killed, flayed, and cooked in the course of an hour and a half; coffee is roasted, ground, and boiled in about ten minutes; and meal is kneaded and baked—and perhaps the corn ground—in seldom more than twenty minutes. Much of this may be accounted for by the heat of the climate, by which many articles would be spoiled if kept too long previously to being used. Meat would be tainted in less than a day; the oily principle in coffee would soon be lost, and its pleasant aroma evaporate; and

loaf bread would quickly turn sour, or be rendered unpleasant by the absorption of its moisture. With this cause concur the habits of life which continue to indicate the common origin of the various tribes of people who inhabit the countries between the Indus and Mediterranean; for such is the wonderful tenacity with which ancient habits are retained in the East, that in one state of society we frequently find the usages of another, more early and rude, persisted in. Four thousand years ago, when the hospitable patriarch wished to place some refreshment before those who appeared to him as travellers in haste, he directed bread to be baked, and a calf to be killed and dressed for their entertainment. Hospitality would still be exhibited in the same form under similar circumstances; and, in any circumstances, as little delay would occur in the preparation of food, although it had as many processes to go through.

The various modes in which the grain is disengaged from the ear, reduced to meal, and made into bread, are all so different from our own, that one who has witnessed what he describes is led to think a connected view of the subject will not be unacceptable to the readers of the 'Penny Magazine.'

In or near villages there are usually inclosed threshing floors, perfectly level, and laid over with a compost of clay and cow-dung, to prevent gravel and earth from being mingled with the grain. But generally, as it would be inconvenient to take the sheaves from the fields to the villages to be threshed, the husbandman seeks out some level spot on his grounds, to which the produce of the harvest is conveyed on the backs of his various cattle. At this place a portion of the corn in the ear is laid out in a circle of about a hundred paces in circumference, seven or eight feet wide, and from fifteen inches to two feet in height. When it is thus disposed, there are various methods of obtaining a separation of the grain from the ear,—all of them more expeditious though less cleanly than ours. It is often effected by simple treading. Oxen, and sometimes other cattle, are tied two or three together, and driven around upon the circle. As this exercise greatly fatigues them, they are frequently relieved. In some parts oxen are employed to draw a stone cylinder over the corn; and, in the western parts of Asiatic Turkey, a plank or frame of wood, the lower surface of which is roughened with sharp stones, is the implement in use. But, in Persia and the eastern parts of Turkey, they have a frame-work, to which is attached two or three revolving cylinders of wood, bristled with spikes of different lengths, and which may not unaptly be compared to the barrel of an organ. These teeth punch out the grain with considerable effect, and chop and crush the straw at the same time. On the platform of this sufficiently clumsy machine sits a man who whips on the cattle,—generally a couple of oxen,—which in all these processes have a beam laid over their necks. Men are always in attendance with wooden forks, which have often many teeth spreading out like a fan, to keep the ears properly distributed, and to withdraw, into the clear centre of the circle, the straw on the surface which appears to have been sufficiently threshed. When the grain seems completely disengaged, it is thrown up with spades against the wind, so that the separated grain, the chaff, and the uncrushed ears fall at different distances. The latter are thrown by among the material of the next layer. When one layer has been threshed, and the grain removed, the straw which had been withdrawn into the central space, is replaced in the ring, and driven over to be crushed and chopped for the use of the cattle, whose food is composed of barley and chopped straw, as they use neither hay nor oats in the East. The process of threshing concludes with the careful collection of the cleds of earth to which any grains adhere, and of the dust with which any may be mingled, and which is sifted with much care.

The very primitive process of grinding the corn is less varied than that of threshing. It is performed by the means of two small circular mill-stones. The lowermost stone is immoveable when in use; but the uppermost being turned round by a wooden handle or pin, the corn between the two surfaces is ground, and the meal falling out at the edges, is received in a cloth, while the mill is continually replenished through a hole in the upper stone. This labour is generally performed in the early morning by the women of the household. They sit upon the ground, commonly two to a mill, the lower part of which is held between their legs. As the upper stone is whirled round, the women beguile their labours by singing, at the top of their voices, certain songs which seem almost appropriated to this service. The simultaneous noise of grinding and singing in an Oriental city warns the indolent that it is time to rise; and the absence of such sounds is noticed in the Old Testament as a mark of desolation. This mode of grinding by women, with the tuneful accompaniment, is by no means confined to Asia. The same practice has been observed in Lapland; and Pennant not only notices something very similar in Scotland, but gives an engraving which very well represents the Oriental process. It is the same in Africa. Many readers will remember the pathetic incident in the travels of Park, in which some African women having taken him, when ready to perish, to their homes, beguiled their labours by an extempore song lamenting his destitute condition. That he had "no wife to grind his corn," was the burden and climax of their song. A verse of Mrs. Barbauld's version may be given:—

"Unhappy man, how hard his lot;
Far from his friends—perchance forgot
As thus he sits forlorn!
He boasts no mother to prepare
The fresh-drawn milk, with tender care,—
No wife to grind his corn!"

So much corn is generally ground every morning as will serve the family for the day; and after the grinding the process of baking immediately commences.

The oven is usually built of clay, and generally inclines in shape to a cone, being about three feet high, and much wider at the bottom than the top, where there is an opening of more than a foot in diameter; and near the bottom there is another hole for the convenience of introducing fuel and withdrawing ashes. There are portable ovens of this kind, made of stout earthenware, one of which is usually planted in the forecastle of the vessels navigating the Tigris, and in which bread is baked every day. In Kourdistan and Armenia, the general construction, which resembles a lime-kiln, is in the main preserved, but with this difference, that the oven, instead of being raised above the ground, is dug in it, and is made to serve, besides, all the usual purposes of a fire-place. The oven is heated with wood; and when it is burnt down to clear embers, which lie at the bottom and long continue to afford much heat, the dough is prepared in a large wooden bowl, and portions are successively moulded into the form of thick round cakes on a board or stone near the oven. These, when flattened out to about the size of a breakfast-saucer, the woman takes up and tosses about on her arms, with surprising dexterity and quickness, till it becomes no thicker than a pancake, and forms a circle of a foot in diameter, or an oblong of a foot and a half in length. When the cake is brought to the requisite thinness, one side is wetted with water as well as the hand and arm by which it is introduced into the oven. The wet side, by an operation which requires much tact with a piece of dough of such tenuity and extent, is stuck against the side of the oven, where it adheres until per-

fectly baked, when, if not properly attended to, it would fall into the hot embers at the bottom; and, if prematurely removed, cannot again be attached. Its timely removal becomes therefore an operation requiring much judgment and care. If the introduction and removal of the cakes were not rapidly performed, the heat of the oven is generally so great that the arms and hands of the woman would be much injured. But such is the facility acquired by habit in all these operations, from the tossing of the cake to its final removal from the oven, that one woman finds no difficulty in attending to the baking of five or six cakes at once, at the same time preparing others to replace those withdrawn. The baking takes about five minutes, or less, according to the heat of the oven. The women pride themselves greatly on skill in these operations; and among the Arabs, Kourds, Armenians, and the Eelauts of Persia, the reputation of being a skilful maker of bread powerfully recommends a young woman to the attention of those who are desirous to marry.

The bread made in the manner we have described varies according to the prevailing taste in different parts. It is sometimes rather thin and crisp; but more generally flexible and moist—often, indeed, changed but slightly from the state of dough. In about twenty-four hours it becomes very hard, and cannot well be used without previous soaking in water; consequently bread is only baked or bought for the occasions of the current day. This bread is not generally liked by Europeans, and the writer felt no small satisfaction in finding at Erzeroom, all the way from thence to the Black Sea, and at Constantinople, this pancake-bread superseded by loaves which are baked in ovens not much unlike our own. This change probably arose from the circumstance that the colder climate enabled the people to have bread which might be kept longer than a single day. It is common in that part of the country to see a large loaf of brown bread in the shop windows, slices from which, sold by weight, the poor people purchase as their wants require.

Besides the ovens before described, there is a much simpler process of preparing the cake-bread, which we first had occasion to notice as performed by a poor Eelaut woman near the river Eraskh in Azerbijan, before the door of a hut, about six feet square, formed of mats and sticks. A convex plate of sheet-iron was supported, about five inches from the ground, by stones with the convexity upwards. This plate was heated by a slow fire underneath, and the thin cakes of dough were laid upon it and baked, less expeditiously, but we thought far more conveniently and cleanly, than by the other processes, in which particles of the clay, with which the oven is built or lined, are often brought away with the bread.

There is a mode different from any of those mentioned, by which a thin bread or biscuit is prepared, not thicker than a wafer, and which, being very crisp and dry, keeps much longer than any of the breads described. A thin paste is prepared, like that which we use in making puddings, and it is poured out and spread upon the outer surface of a portable oven of metal, stone, or earthenware. It is immediately consolidated by the heat, and baked in a moment.

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*The Dodo.*—Mr. Reinagle, the eminent artist, has sent us a letter confirmatory of the existence of the Dodo, of which an account was given in the 75th Number of the 'Penny Magazine.' Mr. R. states, that while he was, for several years, engaged in the study of zoology, he had frequent occasion to hold discussions with Dr. Shaw of the British Museum, and with Messrs. Parkinson, on subjects in zoology of rare existence. He was on one occasion invited to spend a whole day with Dr. S. at the Museum, where he amused himself with a general examination of the numerous objects of natural history, unstuffed birds, animals, and reptiles, which were heaped together in the then lumber-room. After turning over a vast pile, he discovered the head and beak, with the short thick legs, of a bird, which instantly struck him to be those of the Dodo. Mr. R. immediately ran with the relics to Dr. Shaw, who in the end concurred with him in considering the remains as those of the Dodo, the existence of which seemed to them no longer questionable. Mr. R. has not been able to learn what became of the fragments, but they ought still to be somewhere in the British Museum.

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## THE VAIN REGRET.

Oh! had I nursed, when I was young,
The lessons of my father's tongue,
(The deep laborious thoughts he drew
From all he saw and others knew,)
I might have been—ah, me!
Thrice sager than I e'er shall be.
For what saith Time?
Alas! he only shows the truth
Of all that I was told in youth!

The thoughts now budding in my brain,—
The wisdom I have bought with pain,—
The knowledge of life's brevity,—
Frail friendship,—false philosophy,
And all that issues out of woe,
Methinks, were taught me long ago!
Then what says Time?
Alas! he but brings back the truth
Of all I heard (and lost) in youth!

Truths! hardly learn'd and lately brought
From many a far forgotten scene!
Had I but listen'd, as I ought,
To your voices, sage,—serene,
Oh! what might I not have been
In the realms of thought!

BARRY CORNWALL'S *English Songs.*

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## THE AURORA OF GUIDO.

THE celebrated Aurora of Guido adorns one of the ceilings of the Palazzo Rospigliosi at Rome. The picture is painted in what may be called a middle manner, between the extremes of the two styles which this great artist practised at different periods of his life. Guido is chiefly known in this country by a style of silvery brightness, which he was led to adopt, less by any natural predisposition towards it than by a desire to obtain novelty, by a mode of practice directly contrasted to the dark and forcible manner of Caravaggio, which had acquired great popularity, and which he had begun by imitating. In all that relates to composition, character, and expression, the Aurora must rank among Guido's finest performances. The general conception is in the highest degree poetical; the figure of Apollo unites grace with dignity; and that of Aurora, flying before him and strewing flowers upon the earth, seems buoyant as the morning breeze itself. It may be objected to many of Guido's figures, however admirable in other respects, that their action is artificial, and even theatrical. The present composition is, however, entirely free from that defect: the action of the Hours is playful and simple, and the expression of their faces is admirably sweet and natural. The general vivacity of the effect is finely attempered by the still, broad, and brilliant light which surrounds the Apollo, and by the serene and silent aspect of the lower part of the picture, in which the earth and ocean seem just awakening beneath the dawn of day.

The great merits of this work,—those of poetic conception and beautiful character,—are attempted to be given, however inadequately, in our engraving.

The picture itself is not one of Guido's happiest efforts of colouring. The hues of the draperies are too violently contrasted, and the sky presents a uniform mass of deep blue, the unpleasant effect of which, however, has probably been heightened, or altogether occasioned, by injudicious reparation.

THE AURORA OF GUIDO.

"O, mark! again the coursers of the Sun,
At Guido's call, their round of glory run!
Again the rosy Hours resume their flight,
Obscured and lost in floods of golden light."

ROGERS' *Epistle to a Friend.*

## TRADE WITH AMERICA.

PREVIOUS to the war which ended in the independence of the United States, that country was supplied from England with most articles which were required for domestic comfort or household decoration. Although the industry and skill of the Americans have subsequently been exerted on home manufactures as substitutes for these foreign commodities, yet such has been the growing prosperity of both countries since that period, that the average annual amount of the exports from England to the United States of America, is now much more than quadruple what it was between the years 1750 and 1760.

The official value of the medium annual exports to the whole of the Americas, both North and South, between the years 1749 and 1755, was 2,001,690*l.*; between the years 1784 and 1792, 5,605,626*l.*; in 1830, 21,117,014*l.* For the United States alone the exports from this country, in 1830, were 8,236,677*l.*; and if to this amount be added 2,619,562*l.*, the value of the exports, in the same year, to the British possessions in North America, the value will be 10,856,239*l.* This amount is nearly equal to the 10,915,778*l.* which was the total amount of exports from England, in 1760, to all parts of the world except India and China: the value of the exports to the latter places only amounted to 736,358*l.*

The almost entire dependence of the British North American Colonies upon the parent country, for a supply of almost every article of commerce and luxury, is curiously illustrated, by an order sent to Glasgow for supplies for General Washington's family, in the general's own hand-writing, and dated the 20th of September, 1759*. We think this document will be found of interest, not only as illustrating the character of some part of our trade with America at the early period to which we have alluded, and as showing the relative position of the two countries with regard to arts and manufactures previous to their dismemberment, but as exhibiting a great public character interesting himself *in* family arrangements, and in the minute details of private life. It will be remembered that with the same hand, which, on this occasion, penned an order for a ribbon to adorn his wife, and barley-sugar for his children, he had a few years after to sign the treaty of peace, whereby the independence of his country was fully recognised.

"2 beaver hats, plain, each to cost a guinea; 1 sword-belt of red morocco leather or buff,—N.B., no buckles or rings; 4 lbs. of ivory blacking; 2 best two-bladed knives; 1½ ream of paper; 2 flowered lawn aprons; 2 pair woman's white silk hose; 6 pair fine cotton ditto; 4 pair thread ditto; 1 pair black and 1 pair white satin shoes of the smallest sizes; 6 pair woman's best kid gloves; 6 pair ditto mittens; 1 black mask; 1 dozen most fashionable pocket handkerchiefs; 2 pair neat small scissors; 1 lb. sewing silk, shaded; 4 pieces binding tape; 19 M. pins (different sizes); 3 lbs. Scotch snuff; 3 lbs. best violet Strasburgh; 1 piece white satin ribbon, pearl edge; 1 case of pickles; 1 large Cheshire cheese; 4 lbs. green tea; 10 gross best corks; 1 hhd. best porter; 10 loaves of double and 10 of single refined sugar; 3 snaffle bridles; 9 best girths; 25 lbs. brown soap; 2 dozen packs playing cards; 2 sacks best English oats; 1 dozen painter's brushes; 12 best hand padlocks; 18 bell-glasses for garden; more chair bottoms, such as were wrote for in a former invoice; 1 more window-curtain and cornice; busts of copper enamel or glazed, viz., of Julius Cæsar, of Alexander the Great, of Charles XII. of Sweden, and another of the King of Prussia—these all to be of the same size in order to fill up broken pediments over doors, and not to exceed 15 inches in height nor 10 inches in width; Prince Eugene and the Duke of Marlborough, of somewhat smaller size than the above; sundry small ornaments for a chimney-piece that is 6 feet long and 8 inches broad; 100 lbs. of white biscuit; 2 lanterns; various cloths (as specified), with buttons and threads, enough to make up into clothing; 40 yards coarse jean or fustian for summer frocks for negro servants; 1 piece dowlass at 10*d.*; ½ dozen pair coarse strong thread hose for negro servants; 450 ells Osnaburgh; 350 yards Kendal cotton; 100 yards Dutch blankets; 20 lbs. brown thread; 20 sacks of salt; a large quantity of different kinds of nails (specified); 2 dozen best staples; sets of cooper's and joiner's tools; 5 lbs. white sugar-candy; 10 lbs. brown ditto; 1 lb. barley-sugar; a large quantity of drugs and horse medicines of different sorts (specified)."

* The list has already been published in Dr. Cleland's 'Statistical Account of Glasgow,' having been taken from Mr. Dugald Bannatyne's 'Common-place Book,' into which it had been transcribed from the original document. We have been obliged by our limits to abridge it greatly.

## MONKEYS AT GIBRALTAR.

*(From a Correspondent.)*

WHEN I was at Gibraltar, the most amusing creatures in the garrison were the wild monkeys that ran about in great numbers on the face of that remarkable rock. As they were constantly seen, they were frequently the subject of conversation. People used to wonder where they came from, as they are not found in the neighbouring mountains of Spain, nor indeed, in their wild state, in any other part of Europe; and it was equally matter of surprise how they lived on a bare rock that produced nothing but scorpions, lizards, a few black snakes, and, here and there, some dried up and diminutive shrubs that looked as sapless as the rock itself. The soldiers and common people, indeed, accounted for all this in a manner perfectly simple and satisfactory to themselves, by assuming, as a certainty, that the celebrated Saint Michael's Cave, which has a mouth or entrance near the summit of the Rock of Gibraltar, and which penetrates to a depth that nobody as yet has been able to ascertain, is continued under the bed of the sea all across the Straits which separate the rock from Africa, and has a corresponding mouth on Mount Abyla, or "Apes' Hill," (as the African mountain is popularly called,) which is just opposite, and abounds with monkeys of precisely the same description. I felt it, however, rather difficult to conceive this double cavern and this connecting tunnel, which must be some sixteen miles long even if it ran in a perfectly straight line, or that the monkeys (supposing such a communication to exist between Europe and Africa) could have used it as a road by which to emigrate; or (another thing included in their theory) that the monkeys continued constantly to use it, going to and fro for their supplies of provisions, &c.

It is not so amusing, but more natural, to suppose that, when the Moors invaded Spain from the opposite coast and settled in Gibraltar, some monkeys were brought over with them; or that, at a more recent period, when the Spaniards, among other possessions in Africa, held Ceuta, in the neighbourhood of Apes' Hill, that they sent some monkeys to the garrison; then that some of these cunning creatures escaped, and taking refuge in the inaccessible cliffs and caverns which compose so great a part of the rock of Gibraltar, propagated their species at liberty, and laid the foundation of the now numerous and flourishing colony. The all but isolated position of Gibraltar, which is joined to the main land by a low, narrow isthmus of sea-sand, which, at no very remote period, has evidently been under water, may account for their remaining confined to that rock and not extending into Spain.

In whatever manner they may have come, there they

are, and, as I have said before, in great numbers. On my walks to the upper part and the back of the Rock,—which were very frequent in the summer evenings,—I scarcely ever returned without having seen many of them. Sometimes going quietly along, and turning the corner of a rock, I would come suddenly on a large party, seated in a circle like neighbours met together for the pleasure of an evening gossip. The rapidity with which they would decamp on such occasions, and the easy way in which they climbed up the steepest rocks, were astonishing. All that I had seen of the gambols of a captive monkey in England was as nothing compared with the feats of these free denizens. They would never stop or make any noise until they reached a position where it was impossible for man to follow them; but when once there in safety, they would face about, mew and chatter, and make the strangest grimaces, as if mocking me. If I threw stones at them, they would draw themselves into holes or shelter themselves behind some projection of the rock. After the flight of the stone they would re-appear, and scream and make faces anew; but as soon as they saw me stoop to pick up another stone, or raise my hand to throw one I might have already in it, they would again withdraw to their defences as quick as thought. Once, and only once, I succeeded in hitting a sturdy old fellow that seemed the patriarch of the tribe; he set up a curious, shrill, wild cry, which was echoed by his companions, and the next moment they all crossed a higher ridge of the rock, which in many places is narrower than a camel's back, and took refuge in the lofty perpendicular cliffs that rise above Catalan Bay. They seemed to be exceedingly gregarious. I do not remember having ever met with them except in rather large parties.

In the earlier part of my residence in the garrison,—in the months of May and June,—I used often to surprise these monkey parties when they had their young ones with them. These were the most interesting circumstances under which the animals could be seen. Their maternal affection was exemplary. The moment they were surprised, the old ones would take up each her little one on her back and so scamper up the rocks, never stopping, as at other times, to chatter and make faces, but running on until far beyond sight or reach. They carried their young precisely in the fashion which school-boys call pick-a-back. However they might be surprised and close pressed, they never forgot their offspring in their own safety, or retired from the spot without their little ones. On one occasion I saw the curiosity and turn for imitation, which are so characteristic of all their tribe, very amusingly exemplified. The telegraph, which is situated on one of the loftiest points of the rock, was busily at work, announcing the approach of some ships from the Atlantic. On a ridge of the rock, at a short distance, a party of about a dozen monkeys had assembled; they sat all with their faces turned towards the signal-house, as though they understood, or were trying to understand, the mystic signs; and every now and then, as the arms of the telegraph swayed up and down, some of them waved their arms in the same manner, as if mimicking or repeating the motion of the machine.

Some of these animals are always to be seen on the front of the rock; but their favourite resorts and strongholds are at the back of the rock, which, except for a few hundred feet on turning Europa Point at the south, and a much shorter space by Catalan Bay at the north, consists of towering cliffs which drop almost perpendicularly into the Mediterranean, and afford no footing to man either from above or below. From this place of safety they are, however, frequently driven by the levanters, or strong easterly gales, which beat against the back of the rock with furious violence, and sometimes continue for several days. On these occasions great numbers of them are to be seen; as the monkeys, for shelter, always cross the ridges of the rock and come to its front, or western and more accessible face. Meantime a dirty-grey cloud, or haze, gathers round the summits of the rock and rests motionless upon them, while everywhere else the atmosphere is clear. Now, in local parlance, "Old Gib has got his night-cap on," and whenever this is the case, and the monkeys "are all to the west," Gibraltar is a sad place to abide in. I have felt the famed sirocco wind in all its violence on the coast of Sicily and at Malta, but never suffered half so much from it as from the stifling easterly winds at Gibraltar.

In my time, the soldiers of the garrison used to say that the monkeys hated the sight of a red coat, and often threw or rolled stones down upon them as they were standing sentinel at the sides of the rock. If they did so, it was only fair retaliation, for the soldiers (particularly the new comers and young recruits) made it one of their principal amusements to hunt and annoy, and lay snares for the poor monkeys.

It is scarcely necessary to describe the Gibraltar monkey, as it is the same as the Barbary species, which is one of those most frequently exhibited in our streets by the strolling Italian boys. The size of the body is about equal to that of an Isle of Skye terrier,—perhaps rather larger. The colour is a sort of dirty fawn. It has no tail. The species is supposed to be found only in Barbary, Gibraltar, and Egypt.

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## EXPENDITURE OF A GREAT ABBEY IN ANCIENT TIMES.

The Harleian Manuscript, No. 647, in the British Museum, gives precise information concerning the weekly as well as annual expenditure of the Abbey of St. Edmondsbury in the 14th year of Edward I. It presents an account of the necessaries required to support 80 monks, 111 serving-men, 11 chaplains, the nuns of Thetford, and visitors to the monastery. It opens with an account of the weekly charges of the bakehouse and brewery:—16½ seams (that is, quarters) and 2 bushels of wheat, at 5*s.* the seam, 4*l.* 3*s.* 9*d.*; 12½ seams of barley malt, at 4*s.* per seam, 50*s.*; 32 seams of oaten malt, at 3*s.* the seam, 4*l.* 16*s*; wages of the servants in the brewery and bakehouse, each week, 4*s.* 4½*d.*; fuel, 26*s.* 8*d.* The total of weekly charge, 13*l.* 9½*d.*, giving an annual total of 678*l.* 1*s.* 2*d.*

Exclusive of this charge for the monastery, there is a separate account in the bakehouse and brewery for the abbot; the revenues of the abbot and convent, in all the greater monasteries, being kept separate, and the estates for the support of each detached from the other. The weekly expenditure in the abbot's department comes so near in amount (11*l.* 5*s.* 9*d.*) to that for the convent generally, that it seems necessary to add the remark that, as a parliamentary baron, the abbot was obliged to maintain a large retinue: he had his town residence and his country seats, and all the visitors to the monastery who held rank in society were necessarily his guests.

In the kitchen of the monastery, 10*l.* per week was expended on flesh, fish, eggs, cheese and other minor articles, making a total annual expenditure under this head of 520*l.*, besides the purveyance of the cellarer, which consisted chiefly in the provision for Lent, during the continuance of which his expenditure was for herrings, 25*l.*; for 4 seams of pulse for gruel, 32*s.*; for 6 seams of beans, 30*s.*; honey, 6*s.* 8*d.*; nuts, 13*s.* 4*d.*; salt, 66*s.* 8*d.*; 42 seams of peas, for pottage through the year, 11*l.*; total annual expense in the cellarer's department, 43*l.* 8*s.* 8*d.* Here the abbot's portion comes in again; the weekly expenditure of which was, 6 carcasses and three quarters of oxen, at 4*s.* the ox. 27*s.*; 15 porkers and a half, at 3*s.* the porker, 46*s.* 6*d.*; 31 geese, at 2*d.* each, 5*s.* 2*d.*; 155 hens, at 1*d.* each, 12*s.* 11*d.* The weekly expenditure in the abbot's kitchen amounted to 4*l.* 15*s.* 7*d.*, making an annual total, exclusive of fuel, of 568*l.* 4*s.* 3*d.* The annual cost of fuel for the kitchen, to both the abbot and the convent, was 30*l.* A charge of 60*l.* then comes for the provender of the horses of the prior, cellarer, and hospitaller; and another 60*l.* is charged for pittances

misericordias, robes, horses, and other necessary expenses of the cellarer. All these various accounts make the gross annual expenditure of the abbey, as far as its affairs in the kitchen, the refectory, and the convent stables are concerned, amount to 1407*l.* 11*s.* 2*d.* This sum seems to have covered the maintenance as well as the hospitality of the convent in ordinary times; but, on particular occasions, a royal visit broke much deeper into the abbey revenues. The entertainment of King Richard II. and his queen at this abbey in 1383, alone cost the monastery eight hundred marks: and King Henry VI., in 1433, stayed there from Christmas to St. George's Day.

The large sums expended upon oaten malt may appear not very intelligible; particularly as the beer brewed from it was not likely to be made a drink of choice by the convent. But the immense number of servants and retainers who were regularly supported, added to those who came with visitors of rank, the constant access of the poor to the convent, and the recollection that travellers in former times resorted to monasteries instead of inns, will easily account for this branch of the expenditure.

## THE NEW PIN.

THERE are few things which more strikingly exemplify the high point of civilization to which this country has attained than the amount of capital continually expended, the inventive talent exercised, and the powerful agencies employed, as the remedy of exceedingly small evils, and the attainment of equally minute objects of convenience. This remark cannot perhaps find a better illustration than in "The New Pin with an immoveable Solid Head." The defect in the old pin, which it is the object of the present improvement to remedy, is, that the head of the pin being separately spun and then put on, was liable to be detached by the pressure of the thumb. The principle of the improvement consists in this,—that the head being formed of the same piece with the body of the pin, the inconvenience attending its slipping is effectually prevented. This is the minute improvement in a minute article, the accomplishment of which has cost the patentees several years of attentive application, and the expenditure of a large capital, according to their own statement, which, when the extent and character of the machinery employed are considered, there can be no reason to doubt. At the same time, it must be taken in connexion with this improvement, that the patent pin is altogether produced by machinery, instead of partly by hand processes. "The Patent Solid-headed Pin-works" are situated about a mile from Stroud, on the Bath and Birmingham road. The principal building consists of five floors, each of them one hundred feet in length, and completely filled with machinery. A large iron water-wheel, on which a stream acts with a power equal to that of forty horses, gives motion to all the mechanical apparatus, which is so ingeniously constructed as to perform every essential operation for converting a coil of wire into the perfect pin with scarcely any noise and little apparent effort. Upon the old system, this comparatively insignificant article had to go through fifteen or sixteen hands before it was finished; but this curious machine effects the whole without manual assistance, or any extraneous aid whatever; for, the wire being placed on a reel, and the machine set in motion, all the mechanical combinations, so numerous and dissimilar in their movements, are simultaneously performing their various functions with a rapidity and precision truly surprising. While one portion of the apparatus is drawing out and straightening the wire, and cutting it off at the required length, another combination is pointing and polishing the pin, and another compressing a portion of the wire into dies to form a perfect and neat round solid head. The various movements are completely at command, and susceptible of instant alteration and adjustment to pins of any length, and heads of any form, while the machine is working at its ordinary speed. Each machine operates on four wires at once, and from forty to fifty pins are with facility produced in a minute by each of the 100 machines which are completed, and in constant operation at the works. As a more particular detail of the process would not be well understood without engravings, we shall only further state that the works, with the present number of machines, are capable of producing upwards of two tons of pins weekly, or, stating the amount numerically, 3,240,000 pins daily, 19,440,000 weekly, supposing all the machines to be in operation twelve hours daily. It is stated that altogether twenty millions of pins are daily manufactured in this country for home consumption and for the foreign market.

*Peter the Wild Boy.*—Since we gave an account of Peter the Wild Boy, in No. 70 of the 'Penny Magazine,' we have received some further interesting information from a lady, a member of whose family knew this remarkable being. Peter was first found in the act of sucking a cow, in the woods of Hanover. Queen Caroline, who greatly interested herself about Peter, was very desirous of having him educated, and employed various masters to teach him to speak. After the Queen's death Government allowed a pension for him, and he was placed with Thomas Fen, a respectable farmer in Hertfordshire. He was accustomed in the spring of the year to wander away, subsisting on the green buds of trees, &c. His adventure in Norfolk, during one of these excursions, has been related, to which we may add that he was saved from the consequences of his supposed contumacy by some person reading in a newspaper an advertisement describing the missing Wild Boy. To prevent the recurrence of such serious adventures, he was provided with a brass collar, on which was inscribed "Peter the Wild Boy, Broadway Farm, Berkhampstead." When Peter was angry, he never attempted to strike or use his hands in any way but always endeavoured to bite. Pleasure he expressed by kissing the object that excited his admiration. When pleased he would also often dance about, shaking his brass collar, and making a humming noise which he intended for singing, but in which it was difficult to trace an air. Painting delighted him, and he would immediately kiss any object that was of vivid colours. He was passionately fond of music, and would endeavour to enter the room where any kind of music was performing, jumping and dancing to it. We have already described the extent of his vocabulary, to which he afterwards added "Hom Hen" (Tom Fen), intended for the name of the farmer whom he recognized as his master. Though quite harmless, Peter was sometimes sullen, and would never work if desired to do so; but, if nothing were said to him, he would often assist in the farm and do more work than three other men. He usually had bread and milk for supper, and as soon as he had taken it he always went up to bed; so that if he was wished out of the way, some bread and milk was given to him, and when he had finished it he would immediately go off to bed, even though it were still broad daylight. Peter could live on the simplest fare, but he much liked anything sweet, and any kind of confectionary. There is an anecdote of his having made his way into a room where all the sweet things were laid out, that were prepared for a grand fête given to Lord Chatham; and when the second course was called for, Peter was discovered, with a large bowl, in which he had mixed pastry, jellies, creams, and other niceties, employed, quite to his own satisfaction, in eating the whole collection with his hands. Peter was capable of very sincere affection; for he became attached in a very extraordinary manner to the farmer who succeeded Tom Fen in the charge of him; and, when this person died, he went to his bed-side, raised his hands, and endeavoured to awaken him; but when he found his efforts unavailing, he went down stairs and seated himself by the chimney. What his ideas of death were, cannot be known; but he refused his food and pined away, till in a few days he actually died of grief,—for he never had any illness.

*** The Office of the Society for the Diffusion of Useful Knowledge is at 59, Lincoln's Inn Fields.

LONDON:—CHARLES KNIGHT, 22, LUDGATE STREET.

Printed by WILLIAM CLOWES, Duke Street, Lambeth